State of Alaska
Department of Fish and Game
Nomination for Waters
Important to Anadromous Fish

Region: AUCTIC

USGS Quad: DE LONG MTNS A-2

Anadromous Water Catalog Number of Waterway: 331-00-10060-2213

Name of Waterway: OAK CREEK

☐ USGS Name ☒ Local Nam

☒ Addition ☐ Deletion ☐ Correction ☐ Backup Information

For Office Use

Arc# 5332

Nomination #	01 435	[signature] OK LLT	12/3/01
Revision Year:	2001	Regional Supervisor	Date
Revision to: Atlas ___ Catalog ___		[signature]	12/13/01
Both X		AWC Project Biologist	Date
Revision Code:	A-2	[signature]	12/21/01
		Drafted	Date

OBSERVATION INFORMATION

Species	Date(s) Observed	Spawning	Rearing	Present	Anadromous
DOLLY VAUDEN	7/7/01		X		☒
DOLLY VAUDEN	8/3/01		X		☒
					☐
					☐
					☐

IMPORTANT: Provide all supporting documentation that this water body is important for the spawning, rearing or migration of anadromous fish, including: number of fish and life stages observed; sampling methods, sampling duration and area sampled; copies of field notes; etc. Attach a copy of a map showing location of mouth and observed upper extent of each species, as well as other information such as: specific stream reaches observed as spawning or rearing habitat; locations, types, and heights of any barriers; etc.

Comments: SEE TRIP REPORT, ATTACHED

ALASKA DEPT. OF FISH & GAME
DEC 7 2001
REGION II
HABITAT AND RESTORATION DIVISION

Name of Observer (please print): ALVIN G. OTT

Date: 12/3/01

Signature: [signature]

Address: 1300 COLLEGE ROAD
FAIRBANKS, AK 99701

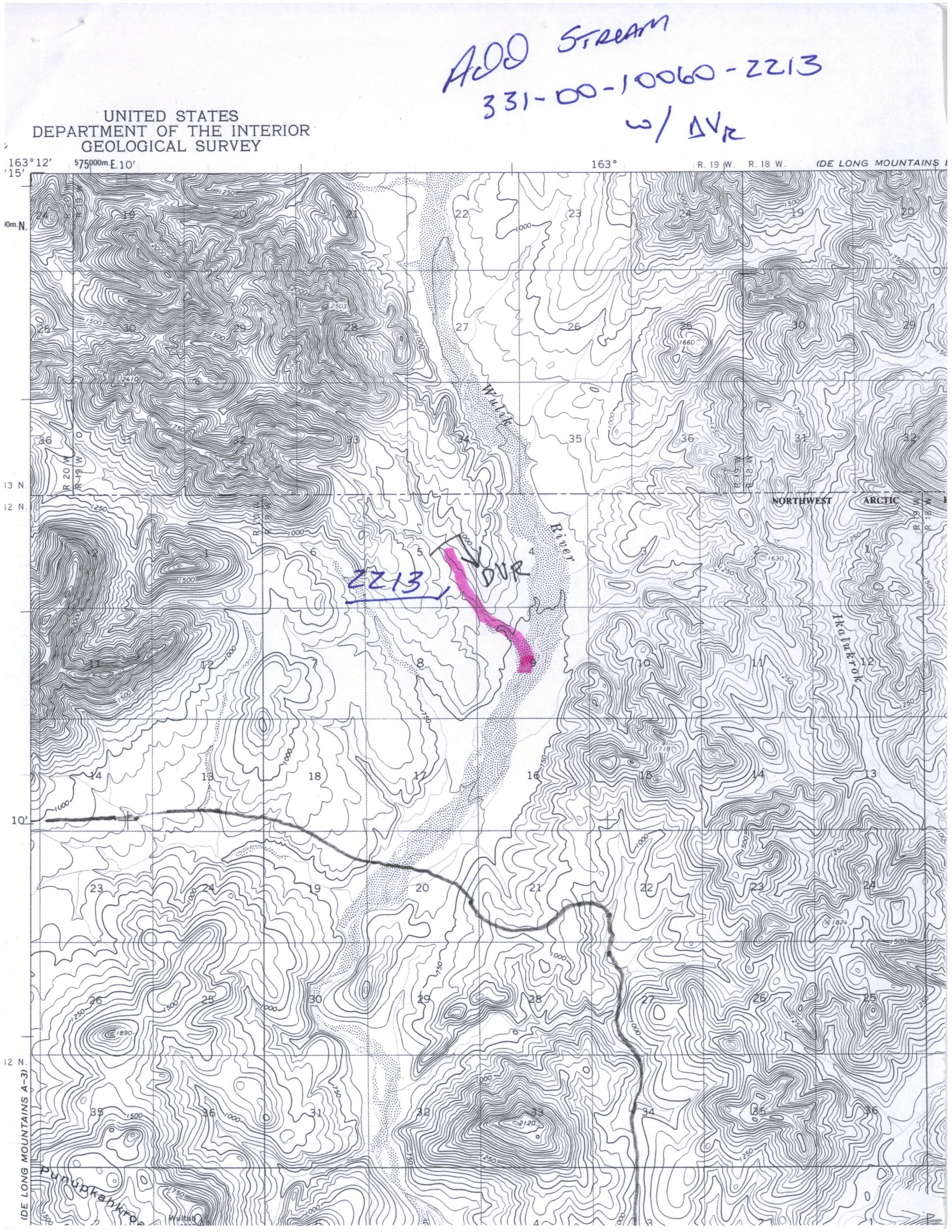
This certifies that in my best professional judgment and belief the above information is evidence that this waterbody should be included in or deleted from the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes per AS 16.05.870.

Signature of Area Biologist: [signature]

Revision 11/96

Add STREAM
331-00-10060-2213
w/ ΔV_R

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



Red Dog Trip Report (July 28 to August 9, 2001)
William Morris and Al Ott

The objectives of the late July/early August field trip to the Red Dog Mine were to capture and release juvenile Dolly Varden at the NPDES sample sites, to capture and release juvenile Dolly Varden at the Anarraaq and shallow gas baseline sites, to collect juvenile Dolly Varden for heavy metal analyses at selected streams, to conduct an aerial survey for chum salmon in Ikalukrok Creek, and to begin collection of juvenile Dolly Varden in selected streams along the Delong Mountains Transportation System (Haul Road). All fish monitoring sites as listed in the NPDES permit were sampled as required by the permit (Table 1) and a chum salmon survey along Ikalukrok Creek from its mouth to Dudd Creek was done on August 7, 2001.

Table 1. Fish monitoring sites as required under the NPDES permit.

North Fork Red Dog Creek (Station 12)
Mainstem Red Dog Creek (just below North Fork Red Dog Creek)
Mainstem Red Dog Creek (Station 10)
Ikalukrok Creek (old Station 7) (just below Dudd Creek)
Ikalukrok Creek (just upstream of Dudd)
Ikalukrok Creek (Station 8)
Ikalukrok Creek (Station 9)
Anxiety Ridge Creek
Evaingiknuk Creek
Buddy Creek

Catches of juvenile Dolly Varden in minnow traps generally were lower at all sample sites in late July/early August of 2001 than in previous years (Table 2). Highest catch occurred in Buddy Creek where 34 fish were captured. The total catch for the ten NPDES sites was 79 fish (Table 2).

Streams in the vicinity of the Anarraaq Prospect and exploration drilling for shallow gas were sampled for fish for the second time during summer 2001. Sixteen sites, as listed below, were sampled between July 29 and August 5, 2001:

Upper North Fork Red Dog Creek	Sled Creek (Station 212)
Moil Creek (Station 211)	Noa Creek (Station 210)
Grayling Junior Creek (Station 209)	East Fork Ikalukrok Creek (Station 208)
Ikalukrok Creek (below Alvinella) (Station 207)	West Fork Ikalukrok Creek (Station 205)
Ikalukrok Creek (upstream West Fork) (Station 206)	Sourdock Creek (Station 204)
Competition Creek (lower) (Station 202)	Ferric Creek (Station 213)
Competition Creek (upstream Sourdock) (Station 203)	Square Creek (Station 214)
Sunday Creek (Station 215)	Oak Creek (Station 216)

Table 2. Catch of juvenile Dolly Varden in minnow traps fished for about 24 to 48 hours using ten traps per sample reach in early July and late July/early August 2001 in streams listed in the NPDES permit for the Red Dog Mine.

Sample Site	Date/Time Set	Date/Time Pulled	Temperature (°C)	Number of Dolly Varden
North Fork (Sta 12)	7/4 at 0845	7/6 at 1600	7.0	0
	7/29 at 0900	7/31 at0900	3.2	1
Mainstem (below North Fk)	7/4 at 1005	7/6 at 1700	9.0	0
	7/29 at 1000	7/31 at 0900	5.6	9
Mainstem (Sta 10)	7/4 at 1340	7/6 at 1000	10.0	1
	7/30 at 0900	7/31 at 1600	5.1	3
Ikalukrok (below Dudd)	7/5 at 1030	7/7 at 1130	5.5	8
	8/4 at 1630	8/5 at 1900	5.4	6
Ikalukrok (above Dudd)	7/5 at 0900	7/7 at 1200	5.0	4
	8/4 at 1630	8/5 at1930	5.7	0
Ikalukrok (Sta 8)	7/4 at 1615	7/6 at 1100	9.0	0
	8/4 at 1800	8/5 at 1500	5.1	11
Ikalukrok (Sta 9)	7/4 at 1510	7/6 at 0900	7.0	2
	8/4 at 1800	8/5 at 1600	4.8	2
Anxiety Ridge	7/9 at 1530	7/10 at 1530	12.0	5
	7/29 at 1430	7/30 at 1530	4.2	6
Evaingiknuk	7/9 at 1445	7/10 at 1500	14.0	16
	7/29 at 1330	7/30 at 1500	4.3	7
Buddy	7/9 at 1600	7/10 at 1600	12.0	1
	7/29 at 1600	7/30 at 1700	5.4	34

Streams in the vicinity of the Anarraaq Prospect and exploration drilling for shallow gas also resulted in low numbers of juvenile Dolly Varden captured in minnow traps (Table 3). Ten traps were fished at each sample location for about 24 to 48 hours. Highest catches occurred in Sourdock and Sunday creeks during the early July trip. During the late July/early August sample event, catches remained high in Sunday Creek, decreased in Sourdock Creek, and increased in Grayling Junior and Lower Competition creeks (Table 3). Two young-of-the-year Dolly Varden (50 and 53 mm) were captured in Sunday Creek – based on these fish and collection of young-of-the-year during early July we believe that there probably is a spawning area in Sunday Creek.

Methods and procedures for the collection of fish as described by ADF&G (1998) were followed. Juvenile Dolly Varden kept for metals analyses were frozen and transported to Fairbanks where the sample catalog will be prepared and the fish sent to a laboratory for whole body/dry weight analyses of cadmium, lead, selenium, and zinc. Juvenile Dolly Varden samples retained for laboratory analyses are shown in Table 4. Generally, catches of juvenile Dolly Varden at all sample sites were low compared to most previous years. Ten juvenile Dolly Varden were kept from Grayling Junior Creek (Ikalukrok Creek tributary), North Fork Omikviorvok River (upstream of the haul road), and Omikviorvok River (downstream of the haul road). Juveniles from Mainstem Red Dog (n = 8), North Fork Red Dog (n = 3), Ikalukrok (near Dudd Creek) (n = 6), North Fork Aufeis (n = 5) and Evaingiknuk creeks (n = 9) also were retained for metal analyzes. We planned to retain ten juvenile fish from each selected sample reach, but this goal was not achieved due to low catches.

In the Omikviorvok River we caught both Dolly Varden juveniles and slimy sculpin. In the sample area located about 1.6 km downstream of the road, we caught nine slimy sculpin (Table 5). In the upstream sample reach on the Omikviovok River we caught five slimy sculpin. The slimy sculpin catches in the Omikviorok River were greater than any catches previously recorded for streams in the Red Dog Mine area.

Table 5. Slimy sculpin captured with minnow traps in the Omikviorok River on August 6, 2001.

Sample Site	Number of Sculpin	Minimum Length (mm)	Maximum Length (mm)	Average Length (mm)	Standard Deviation
Omikviorok D/S of Road	9	73	100	87	8.2
North Fork Omikviorok River U/S of Road	5	81	93	88	4.8

Alaska Department of Fish and Game. 1998. Methods for Aquatic Life Monitoring to Satisfy Requirements under 1998 NPDES Permit: NPDES AK-003865-2. Red Dog Mine Site. October 1998.

Table 3. Catch of juvenile Dolly Varden in minnow traps fished for about 24 to 48 hours using ten traps per sample reach in early July and late July/early August 2001 in streams located in the vicinity of the Anarraaq Prospect and shallow gas exploratory drilling activities.

Sample Site	Date/Time Set	Date/Time Pulled	Temperature (°C)	Number of Dolly Varden
Upper North Fork Red Dog	7/8 at 1100	7/10 at 0830	11.1	3
	8/1 at 1400	8/2 at 1030	3.7	2
Sled (Sta 212)	7/9 at 1115	7/10 at 1115	5.0	0
	8/4 at 2000	8/5 at 2000	3.7	0
Moil (Sta 211)	7/9 at 1200	7/10 at 1000	11.0	0
	8/4 at 2030	8/5 at 2030	2.5	0
Noa (Sta 210)	7/9 at 1100	7/10 at 1030	10.0	0
	7/30 at 1130	8/1 at 1300	1.8	0
Grayling Junior (Sta 209)	7/8 at 1500	7/10 at 0900	7.0	5
	7/30 at 1200	8/1 at 1000	2.6	12
East Fk Ikalukrok (Sta 208)	7/6 at 1430	7/8 at 1230	7.0	0
	8/1 at 1300	8/3 at 1900	4.4	0
Ikalukrok (Sta 207)	7/6 at 1130	7/8 at 1100	6.0	0
	8/1 at 1230	8/3 at 1800	3.7	0
West Fk Ikalukrok (Sta 205)	7/6 at 0845	7/7 at 0930	3.0	0
	8/1 at 1100	8/3 at 1700	2.6	0
Ikalukrok (Sta 206)	7/6 at 1030	7/7 at 1030	5.0	0
	8/1 at 1100	8/3 at 1700	3.7	0
Sourdock (Sta 204)	7/5 at 1450	7/7 at 1500	6.5	26
	8/3 at 1500	8/4 at 1930	1.3	8
Upper Comp (Sta 203)	7/5 at 1615	7/7 at 1430	7.0	0
	8/3 at 1500	8/4 at 1930	1.4	0

Table 3. (concluded)

Sample Site	Date/Time Set	Date/Time Pulled	Temperature (°C)	Number of Dolly Varden
Lower Comp (Sta 202)	7/5 at1325	7/6 at 1325	6.0	1
	8/3 at 1600	8/4 at 2000	1.8	11
Ferric (Sta 213)	7/7 at 0930	7/9 at 1000	6.0	1
	8/3 at 2300	8/4 at 2300	2.5	1
Square (Sta 214)	7/8 at 0930	7/9 at 0900	11.0	1
	8/3 at 2200	8/4 at 2200	4.0	6
Sunday (Sta 215)	7/7 at 1210	7/8 at 1600	8.0	15
	8/3 at 2130	8/4 at 2130	4.2	16
Oak (Sta 216)	7/7 at 1500	7/9 at 0825	10.0	4
	8/3 at 2100	8/4 at 2100	2.6	2

Table 4. Juvenile Dolly Varden collected from Evaingiknuk, Mainstem Red Dog, North Fork Red Dog, Grayling Junior, Ikalukrok (near Dudd Creek), and North Fork Aufeis creeks and the Omikviorok River for metals analyses (whole body, dry weight) for cadmium, lead, selenium, and zinc.

Catalog Number	Length (mm)	Weight (gm)						
073001EV00DVJ01	89							
073001EV00DVJ02	78							
073001EV00DVJ03	130							
073001EV00DVJ04	81							
073001EV00DVJ05	90							
073001EV00DVJ06	100							
073001EV00DVJ07	126							
073001EV00DVJ08	117							
073001EV00DVJ09	87							
073101MSRDDVJ01	92							
073101MSRDDVJ02	133							
073101MSRDDVJ03	94							
073101MSRDDVJ04	132							
073101MSRDDVJ05	134							
073101MSRDDVJ06	117							
073101MSRDDVJ07	106							
073101MSRDDVJ08	106							
080101NFUSDVJ01	113							
080101NFUSDVJ01	130							
080101NFUSDVJ01	138							
080101GJ01DVJ01	137							
080101GJ01DVJ02	109							
080101GJ01DVJ03	85							
080101GJ01DVJ04	108							
080101GJ01DVJ05	90							
080101GJ01DVJ06	90							
080101GJ01DVJ07	87							
080101GJ01DVJ08	87							
080101GJ01DVJ09	94							
080101GJ01DVJ10	81							
080501IK07DVJ01	122							
080501IK07DVJ02	77							
080501IK07DVJ03	99							
080501IK07DVJ04	93							
080501IK07DVJ05	96							
080501IK07DVJ06	91							

Table 4. (concluded)

Catalog Number	Length (mm)	Weight (gm)						
080601OMNFDVJ01	123							
080601OMNFDVJ02	83							
080601OMNFDVJ03	131							
080601OMNFDVJ04	132							
080601OMNFDVJ05	134							
080601OMNFDVJ06	133							
080601OMNFDVJ07	95							
080601OMNFDVJ08	87							
080601OMNFDVJ09	111							
080601OMNFDVJ10	105							
080601OMDSDVJ01	138							
080601OMDSDVJ02	139							
080601OMDSDVJ03	104							
080601OMDSDVJ04	87							
080601OMDSDVJ05	87							
080601OMDSDVJ06	91							
080601OMDSDVJ07	133							
080601OMDSDVJ08	134							
080601OMDSDVJ09	100							
080601OMDSDVJ10	98							
080701AUNFDVJ01	140							
080701AUNFDVJ01	99							
080701AUNFDVJ01	92							
080701AUNFDVJ01	99							
080701AUNFDVJ01	84							

073101EV00DVJ01 – July 31, 2001, Evaingiknuk Creek (EV00), Dolly Varden (DV), juvenile (J), fish #01

073101MSRDDVJ01 – July 31, 2001, Mainstem Red Dog Creek (MSRD), Dolly Varden (DV), juvenile (J), fish #01

080101NFUSDVJ01 – August 1, 2001, North Fork Red Dog Creek Upstream (NFUS), Dolly Varden (DV), juvenile (J), fish #01

080101GJ01DVJ01 – August 1, 2001, Grayling Junior Creek, Station 209 (GJ01), Dolly Varden (DV), juvenile (J), fish #01

080501IK07DVJ01 – August 5, 2001, Ikalukrok Creek (old Station 7)(IK07), Dolly Varden (DV), juvenile (J), fish #01

080601OMNFDVJ01 – August 6, 2001, North Fork Omikviorok River Upstream of Road (OMNF), Dolly Varden (DV), juvenile (J), fish #01

080601OMDSDVJ01 – August 6, 2001, Omikviorok River Downstream of Road (OMDS), Dolly Varden (DV), juvenile (J), fish #01

080701AUNFDVJ01 – August 7, 2001, North Fork Aufeis Creek Upstream of Road (AUNF), Dolly Varden (DV), juvenile (J), fish #01

Periphyton in the Omikviorok River was abundant – the stream substrate was covered with attached algae. Periphyton also was abundant in Aufeis Creek at both sites, one located about 1.6 km below the road and the second site on the North Fork of Aufeis Creek about 1.6 km upstream of the road.

As soon as sample results are received from the laboratory, a brief summary of the information gathered will be prepared and distributed. Results from summer 2001 will be compared with cadmium, lead, and selenium whole body (dry weight) concentrations from juvenile Dolly Varden gathered during previous years. Several years of data are available for juvenile Dolly Varden collected in North Fork Red Dog, Mainstem Red Dog, Ferric, and Anxiety Ridge creeks. In 1993, juveniles from Anxiety Ridge and North Fork Red Dog Creek were analyzed for lead and cadmium. Juveniles from Mainstem Red Dog and Anxiety Ridge creeks were collected and run for cadmium, lead, and selenium in 1998. In 1999, Ferric, upper North Fork Red Dog, Mainstem Red Dog, and Anxiety Ridge creeks were sampled and in 2000 juvenile Dolly Varden were collected from Mainstem Red Dog, upper North Fork Red Dog, and Anxiety Ridge creeks.

A reconnaissance survey (helicopter) for adult chum salmon in Ikalukrok Creek was conducted at about 2200 hours on August 6. Actual flight time was less than 15 minutes and we estimated 138 adult fish in the lower portion of Ikalukrok Creek. On August 7 we conducted an aerial survey of Ikalukrok Creek from about one mile upstream of its mouth to the confluence of Dudd and Ikalukrok creeks. The survey was run from about 2100 to 2200 hours under overcast skies with light rain and wind. Visibility varied during the survey from excellent to poor.

On August 7, we estimated about 850 adult chum salmon in Ikalukrok Creek. Sixty-five adults were seen in Ikalukrok Creek between Station #7 and the mouth of Dudd Creek – three groups of about 10 fish each were downstream of Dudd Creek and about 35 were in the mixing zone of Dudd/Ikalukrok creeks. The remaining chum salmon (about 800) were observed spread throughout and in large groups in the lower portion of Ikalukrok Creek. Seagulls were observed on gravel bars in the reach containing most of the chum salmon, but only one carcass was seen. The estimated number of chum salmon in Ikalukrok Creek in fall 2001 should be considered the minimum number of fish present. Due to survey conditions it is quite likely that considerably more adult fish were present.

Young-of-the-year Arctic grayling were observed in two locations: lower Mainstem Red Dog and North Fork Red Dog creeks (Station #12 area). Few young-of-the-year were present. With the late breakup and high flow events during and after spawning, survival of age 0 fish in 2001 probably was poor.

Aerial surveys at the confluence of Dudd, Mainstem Red Dog, and Grayling Junior creeks with Ikalukrok Creek were made several times during the early fall sample event (late-July to early August). Very few Arctic grayling were seen at the mouth of Dudd and Mainstem Red Dog creeks and only about 100 were observed at the mouth of Grayling Junior Creek. In early July 2001, we estimated over 300 adult Arctic grayling at the mouth of Grayling Junior Creek.

In summer 1999 and 2000, substantial numbers of small Arctic grayling were observed in Ikalukrok, Buddy, Mainstem, Anxiety, and North Fork Red Dog creeks. Numbers captured in the North Fork Red Dog Creek fyke-net in June and July 2000 also were high. In summer 2001, we caught very few (<30) small Arctic grayling in the fyke-net fished in North Fork Red Dog Creek and we did not observe these size fish in our sample areas. In late July/earlyAugust we did find several of the smaller Arctic grayling at the mouth of Grayling Junior Creek and on August 5 we saw about 30 to 50 at the mouth of Mainstem Red Dog Creek.